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Emsworth Lock and Dam Physical Model Study, Main Dam Scour Protection

Description

The Emsworth Locks and Dams are located approximately 6 miles downriver from Pittsburgh on the Ohio River. The "main" dam and the "back channel" dam are separated by Neville Island.

The project consists of two navigation locks and gated spillway in the main channel and a gated spillway in the back channel.

View of Emsworth Lock and Dam Model

Issue

The gated spillways were constructed just upriver from the existing non-gated spillway. The older non-gated spillway was used as an apron for the new structure. It became apparent the use of the older structure as an apron provided inadequate erosion protection. In the early 1980s, a riprap blanket was placed just downstream of the non-gated structure for scour protection. However, since then the riprap has been scoured as deep as 10 ft in some areas and causing the potential for apron and gated dam pier failure. At the request of the US Army Corps of Engineer, Pittsburgh District (CELRP), the US Army Engineer Research and Development Center (ERDC), Coastal and Hydraulics Laboratory (CHL), reproduced a 1:35 scale study to verify the adequacy of a proposed pre-cast concrete apron extension and new riprap blanket design.

Sponsors

US Army Corps of Engineers, Pittsburgh District (CELRP)

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